

A Therapist-Assisted Internet Self-Help Program for Traumatic Stress

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The authors describe a therapist-assisted, Internet-based self-help intervention to treat posttraumatic stress disorder (PTSD) and discuss how it can be used as an efficient tool to treat large numbers of traumatized individuals. The intervention uses a modified form of *stress inoculation training*, promoted through daily homework assignments completed in vivo, using fewer therapist resources than standard face-to-face therapy. The process and structure of the treatment program (and structure of the Web site) and clinical and Internet security safeguards are described to introduce practitioners to a unique therapist-assisted self-management model of PTSD. It is hoped that the method described will lead to other novel, efficient methods of delivering interventions and treatment for PTSD in primary care and other outpatient and private practice settings.

The majority of people who suffer from posttraumatic stress disorder (PTSD) do not receive the care they need (e.g., Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kulka et al., 1988). As large numbers of potentially traumatized individuals require evidence-based mental health interventions for PTSD, efficiency of care delivery is critical. In this article, we describe the rationale and methods used to treat PTSD using a self-paced approach, which uses a specially designed Web site to provide patient care efficiently (in this case via the Internet). Our goal is to introduce practitioners to a unique therapist-assisted self-management model of PTSD treatment, which uses the Internet as an efficient vehicle to promote, prompt, and monitor applied stress management. We also offer a unique heuristic model of trauma care that utilizes evidenced-based cognitive-behavioral therapy (CBT) techniques (e.g., Foa et al., 1999) in a self-management framework to facili-

tate adaptive coping with negative affect and arousal that inevitably arise in situations reminiscent of traumatic experiences across the life span.

While the prevalence of trauma across the life span suggests that it is part of the human condition, the risk of long-term, untoward mental health problems implicated by exposure to trauma is surprisingly low. While the majority of people exposed to trauma are initially overwrought, epidemiological studies show that only 8% to 9% are at risk for chronic mental health problems stemming from all forms of trauma, with trauma and loss by acts of malicious violence creating the greatest risk for PTSD and other mental health problems (Breslau et al., 1998; Kessler et al., 1995). The chronic psychological and social difficulties that stem from trauma are pernicious, disabling, and resistant to change (e.g., Kessler et al., 1995; Kulka et al., 1988). Thus, it is important to provide

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effective interventions to reduce the incidence of chronic PTSD (e.g., Litz, Gray, Bryant, & Adler, 2002). In our view, interventions for trauma survivors need to focus on promoting lasting changes in coping, lifestyle, and ways of dealing with reexperiencing symptoms and contexts that trigger them (e.g., Litz & Gray, 2004).

CBT is an approach that generally promotes healthy adaptation to the sequelae of trauma. CBT has proved, in randomized controlled trials, to be an effective intervention for acute and chronic PTSD (Bryant, Harvey, Sackville, Dang, & Basten, 1998; Bryant, Sackville, Dang, Moulds, & Guthrie, 1999; Foa et al., 1999; Foa, Rothbaum, Riggs, & Murdock, 1991). In practice, CBT is a mixture of stress management, self-care planning, cognitive reframing, exposure therapy, and relapse prevention. CBT treatment for PTSD requires considerable expertise and is relatively therapist-intensive (e.g., Becker, Zayfert, & Anderson, 2004), which would pose an obstacle to the provision of therapy in the time of disaster or mass violence if therapist resources were limited. To be maximally useful in the time of disaster, brief, cost-effective evidence-based interventions designated to reach a larger number of victims need to be generated. Given that gains from CBT are dependent on the completion of self-directed homework (e.g., Foa & Rothbaum, 2001; Meichenbaum, 1994), it makes sense to consider broadening the homework basis of CBT and lessening the therapist role. In addition, the Internet or the telephone could be used to provide support and ensure adherence to self-management CBT approaches.

Technological advancements in telecommunication have provided the means for effective distance surveillance and support for behavioral health care (e.g., Jerome & Zaylor, 2000; Ritterband et al., 2001). The Internet provides practitioners an additional vehicle to promote mental health, and the use of this modality as an adjunct or stand-alone treatment is gaining acceptance (e.g., Luce, Winzelberg, Zabinski, & Osborne, 2003; Ritterband et al., 2003; VandenBos & Williams, 2000). The Internet can be a means to provide ready access to mental health information and care to underserved populations and people who may not otherwise seek or receive treatment (e.g., Gluckauf, Pickett, Ketterson, Loomis, & Rozensky, 2003; Gustafson et al., 1999). It is likely that the Internet will be more frequently used as a treatment device, given that it has been shown to be a viable method of providing standardized, evidenced-based treatment for depression (Christensen, Griffiths, & Korten, 2002) and PTSD (Lange et al., 2003), and it fits well into a self-management framework for chronic mental health problems (e.g., Lorig & Holman, 2003).

We designed an intervention to promote symptom reduction through applied coping and self-care using a modified stress inoculation training (SIT; see Meichenbaum, 1985) approach to counteract avoidance and withdrawal in victims of trauma. SIT promotes symptom reduction through (a) anxiety reduction techniques, (b) teaching coping skills, and (c) correcting maladaptive cognitions related to the trauma. Application of SIT techniques has been shown to be effective in reducing PTSD symptoms in chronic PTSD (Foa et al., 1991). The goal is to enhance coping self-efficacy by means of a self-directed homework-based stress management program provided over the Internet. SIT is particularly well suited for a self-help approach because of the emphasis on acquiring stress-reduction habits through practice and applying these skills to situations that trigger trauma memories in vivo. In our approach, after an initial period of self-monitoring, a therapist

assists the patient in finalizing a hierarchy of situations related to the trauma that affect well-being and functioning, and the patient applies coping strategies to increasingly difficult situations in his or her hierarchy. The goal is to promote mastery, reduce avoidance maneuvers, and lessen the functional impact of trauma. The Web site is used to collect daily symptom ratings, provide instructions for homework assignments, provide information about stress management, monitor homework completion, and facilitate ad lib contact with the therapist (via e-mail or phone). Brett T. Litz and Richard Bryant developed the intervention content and the Web process, described in detail below. It is currently being used in a randomized controlled trial at Walter Reed Army Medical Center, under the direction of Chuck Engel, to treat victims of the attack on the Pentagon on 9/11 and military personnel with PTSD as a result of deployments to Afghanistan and Iraq. The program can be readily applied to any victim of trauma, with appropriate content modifications.

There are many advantages to using the Internet to promote recovery from trauma. It allows patients the convenience of being able to provide information or complete a treatment on their own time, often in the privacy of their own homes. Our approach respects individuals' capacity to help themselves, at their own pace, once they learn strategies that have been shown to be helpful for individuals exposed to trauma. In contrast to the static modality of computer-assisted psychotherapy, Internet-based PTSD treatment allows for individualization of care and the application and monitoring of skill sets designed to promote mastery in vivo (see Taylor & Luce, 2003).

However, because trauma can have a diverse impact on functioning, we recommend using the Internet to educate, encourage, monitor, prompt, and oversee self-help interventions that are designed and monitored by trained clinicians. We argue that the utility of Internet-based treatment for PTSD is enhanced by providing initial face-to-face contact and providing telephone and e-mail contact when necessary, which is consistent with the recommendations of Jacobs et al. (2001). The need to increase the capacity for more people to access successful therapies can be achieved by significantly decreasing the amount of face-to-face contact required and supplementing face-to-face therapy with Internet-based delivery. In this way, this approach may simultaneously decrease the need for therapist involvement and also maintain personal therapist contact when needed.

The Therapist-Assisted Internet-Based Approach to PTSD Treatment

Design of the SIT Intervention

Schematic structure of patient flow. Interventions are not necessary for all trauma survivors because most people recover on their own. Instead, in the immediate trauma context, we recommend that all trauma survivors be provided information about treatment resources and accurate expectations about the normal course of adjustment to trauma (e.g., Litz et al., 2002). After a number of days, weeks, or months have passed, if the individual feels that he or she may need assistance, he or she should be provided a formal assessment of psychiatric status, functional impairment, and suitability for therapist-assisted self-help directed via the Internet. If needed, this evaluation can be provided over the phone, with the assistance of psychometrically sound screening

questionnaires, mailed or e-mailed. Ideally, the evaluation would occur face-to-face by a therapist who would be conducting the therapist-assisted Internet-based SIT. This face-to-face meeting is intended to help the therapist appreciate the complexities of the patient's presentation and style, initiate a working alliance, and increase the patient's comfort level.

Face-to-face meeting. In the initial face-to-face meeting, it is not imperative that patients share their raw and vulnerable thoughts and feelings about the trauma. In SIT, it is acceptable to shore up the patient and focus primarily on creating a plan of action for coping (Meichenbaum, 1985). The therapist's role in the patient's recovery is to promote nonavoidance, establish a plan of action for self-help, emphasize steady practice, and encourage the patient to try new ways of negotiating stressful situations, as well as motivate the patient to do homework. Patients are also reassured that feedback, encouragement, and problem-solving assistance are regularly available via e-mail and telephone. Getting in touch with their therapist is construed as an important act of self-care. The worst case would be if patients have difficulty and fail to engage in the homework for a prolonged period, without consulting their therapist. Finally, the therapist emphasizes that he or she monitors and oversees the patient's symptom reports and activities on a daily basis.

The face-to-face meeting with a therapist is designed to accomplish several goals: (a) provide psychoeducation about trauma, the nature of PTSD symptoms, and the necessary steps to recovery; (b) introduce the patient to the details of the SIT approach, the therapist's role, and the patient's role; (c) provide initial training experiences with simple stress management and cognitive reframing techniques; (d) generate a working hierarchy of stressful situations to be used later during the therapy program; (e) provide an access code and password to the Web site and introduce the patient to its structure; and (f) problem-solve any obstacles to daily logging and homework completion. At the appropriate time, the therapist demonstrates two types of relaxation techniques—deep diaphragmatic breathing (DDB) and progressive muscle relaxation (PMR)—and asks the patient to practice these techniques after the therapist has had a chance to observe. The therapist then spends the largest portion of the session reviewing the cognitive reframing techniques that patients will be asked to use and report via the Web site over the following 8 weeks. Cognitive reframing is described as a way to challenge negative thoughts about the world that might have arisen as a result of the trauma and replacing them with more realistic thoughts. The process of monitoring thoughts, understanding the connection among thoughts, feelings, and behavior, as well as challenging unhelpful or unrealistic thoughts is reviewed extensively during this initial meeting using several examples to illustrate the technique.

Following this, the patient and the therapist generate an initial hierarchy of items (contexts, cues) related to the trauma that the patient identifies as stressful, difficult to face (and that motivates the patient to avoid), or triggers painful reexperiencing of the trauma. The patient is asked to rank items in order of how stressful they are to confront. The therapist's task is to generate as much information as possible to build a working hierarchy of stressful, trauma-related situations. Raw information shared by the patient will be used to generate a working functional analysis of the various situations after the initial assessment meeting.

The therapist emphasizes the importance of utilizing the stress management techniques practiced in the session to cope with any stress or negative thoughts/emotions brought on by this exercise (including DDB and PMR). The patient is instructed about the use of the Subjective Unit of Distress Scale, which the patient uses to describe his or her distress before and after the relaxation exercises, in session, and over the course of the 8 weeks of homework. The patient is provided (and asked to sign) a detailed informed-consent form that describes in detail the procedures and the precautions taken to ensure confidentiality and privacy in all communications and a separate Health Insurance Portability and Accountability Act (HIPAA) form that seeks authorization to use protected health information for the duration of the treatment (the patient is given a copy of the consent form and the HIPAA form, both of which were approved by a hospital's internal review board). The patient and the therapist then log on to the Web site together and review how to navigate the site, make daily symptom ratings, and complete and submit daily homework online. A schematic of the flow of the intervention is provided in Figure 1.

Web site content and process. Patients are asked to log on to the Web site ideally every day for 8 weeks and complete different activities. We realize that daily logging might be difficult for some people (e.g., they may be away from home or consumed with demands) and thus allow considerable latitude—we encourage patients to log on as much as possible. On the Web site, patients are provided ad lib access to educational information about PTSD, stress, and trauma, as well as common comorbid problems and symptoms they might experience posttrauma (e.g., depression, survivor guilt). Patients are also provided unrestricted access to information on strategies to manage their anger and sleep hygiene, as well as in-depth information on how to perform DDB and PMR. In addition, patients also obtain information about cognitive reframing techniques, unhelpful thought patterns, and ways to challenge them by altering self-talk. Individuals may log on to the Web site anytime and as many times as they wish. Patients are asked to make daily ratings of their PTSD symptoms (using a modified PTSD checklist; Weathers, Litz, Herman, Huska, & Keane, 1993) and a global rating of their level of depression, or at least enter

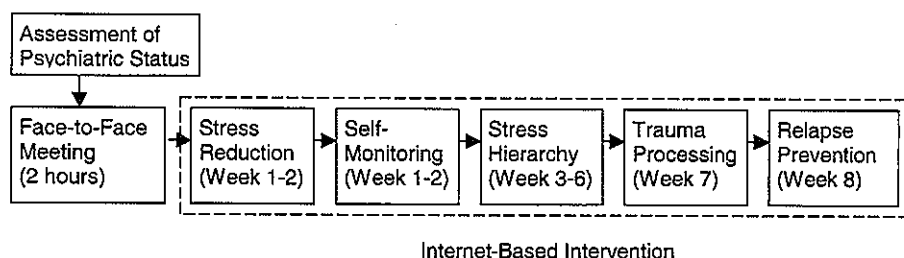


Figure 1. Schematic figure of patient flow. Modules are not necessarily discrete but may overlap.

these ratings every time they log on to the site. If a patient endorses severe depression, therapists are automatically notified via e-mail to contact the patient. To date, in our research program (described below), we have not had practical experience with this feature, possibly because the therapy is well tolerated, is not leading to symptom exacerbation, and we prescreen for serious suicidality. In addition, we are conducting our research in a primary care setting in which patients have other resources to contact in emergencies. Nevertheless, internal review boards and other types of clinical oversight committees may require the notification feature. Because of liability issues it may be necessary in the future to modify the informed-consent procedures and warn patients about the limitations to follow-up contact in a time of emergency (e.g., the therapist will not be able to contact them in time) and emphasize the primary use of emergency room care.

Upon logging on to the Web site, the patient will see a "To-Do List" for that day. At each log-on, the list will include daily symptom reporting, questions about homework experiences (and compliance), and a description of the next homework assignment. After the first day, each time a patient logs on to the SIT site, the patient will be prompted to enter his or her responses from the previous day's homework assignment. Broken up into five units, these assignments promote practicing stress-reduction techniques, self-monitoring, the mastery of a stress hierarchy, processing traumatic memories, and relapse prevention. If patients have not completed the homework assignment, they are encouraged to do so before continuing on to the next assignment. The site is designed to proceed to the next assignment only after the patient enters data from the previous day's homework.

The patient progresses through the program along a predetermined timeline. Patients are able to log in multiple times a day, if necessary, but they can only access one set of tasks each calendar day (to prevent them from attempting to move ahead of their schedule). Likewise, if a patient misses a day, the Web site will not skip that day's assignment; rather, the patient will pick up where he or she left off upon returning. This way, the patient will ideally complete 56 assignments, although some may take more than 56 calendar days to do so. Patients are encouraged to structure a time each day when they will have about 15 min free from interruption, during which they can access the site and complete their online tasks for the day. Homework assignments may take another half hour of their time. Because some patients may wish to proceed at different speeds, there is flexibility for patients to modify their activities according to personal preference. Patients are also encouraged to contact their therapist if they need more time with specific assignments.

During the first 2 weeks, patients practice relaxation skills daily (including cognitive restructuring) and conduct simple, but systematic, self-monitoring of situations or contexts that create negative affect or trigger memories of their trauma. The data from the self-monitoring are reported on the Web site, which is used by the therapist to finalize the stress hierarchy. The self-monitoring phase also encourages patients to appreciate that their emotional experience waxes and wanes and that trauma memory reactivation is triggered, rather than being random and unpredictable. When patients report their stress reduction homework on the Web site, there is a provision to enter biased or unhelpful thoughts and illogical assumptions. From a list provided, patients identify ways of thinking that may have made it difficult to cope with their hierarchy event (e.g., overgeneralization or drawing conclusions

without sufficient evidence) and enter alternative thoughts (or report their success thinking rationally). Therapists read these entries and provide feedback as needed.

In Week 3, patients begin to cope by applying stress management strategies, before, during, and after exposure to hierarchy situations. They start with the least stressful situation, moving up in the hierarchy every 2 days until all items are completed. At the patient's requests, therapists can manually override the automatic progression of the Web site to allow individual patients more time to face particularly challenging hierarchy items. The result is an idiographic tailored experience in which the therapist and patient collaborate to determine both the pace and content of the treatment.

In Week 7, patients write, emotionally process, and then rewrite their trauma narrative. Coping skills learned within the first 2 weeks are applied to minimize distress while writing and reading the narrative. The act of articulating the trauma, processing its meaning, and coping with the emotional response it triggers is seen as an opportunity to improve coping with what is typically the most critical aspect of posttraumatic adjustment: reexperiencing the trauma. The trauma narrative aspect of the SIT is another highly individualized aspect of the program. Patients are instructed to write a detailed first-person account of their trauma experience. They are then asked to read and process their trauma narrative, and they are encouraged to engage any emotions or memories that they may have been avoiding. Finally, patients are asked to write and process another account of their trauma, including any other memories that might not have occurred to them initially. The goal of this exercise is to promote mastery and to reduce avoidance, as opposed to maximizing emotional processing to promote extinction, as in exposure therapy. The patient cannot proceed to the trauma narrative until the therapist speaks to the patient on the phone and evaluates his or her readiness. The therapist allows access to the trauma narrative portion of the Web site after making the clinical decision of whether the patient can face the challenge of focusing specifically on his or her painful memories. During Week 8, patients complete a variety of exercises designed to help them deal with future high-risk contexts (relapse prevention).

The Internet-based application used to deliver instructions and psychoeducation materials to patients and store collected information also measures Web site usage. The software keeps track of how much time patients spend visiting both certain pages and the Web site as a whole. It also records which psychoeducational materials patients access, and how often patients log on to the Web site during the course of the 8 weeks of homework. The data are stored in an online database that stores other information collected by the Web site.

Protecting Patient Privacy and Confidentiality

One of the major challenges in conducting Internet-mediated therapy includes maintaining confidentiality and privacy while preserving data integrity on the Internet. It is important to note that no personal identifiers (i.e., name, address, and birth date) are collected through the Web site, but rather a log-on ID/password system is used to identify patients. Patients may be reluctant to provide personal information over the Internet because of concerns about security. However, with modern technology, it is becoming increasingly safe and acceptable to submit personally identifying or otherwise sensitive information on the Internet. Our Internet

application uses state-of-the-art encryption technology to ensure both the privacy of patients and the quality of the data. This technology is akin to what banks use to protect their online customers' information.

The encryption technology is designed to prevent unauthorized individuals from accessing patient data on the Internet. This technology uses public key cryptography to protect communications to and from the online database in which patient data are stored. Marshall and Haley (2000) provided a detailed description of public key cryptography, which uses decryption keys on both ends of transmissions to decode and encode information transferred over the Internet. The server computer that hosts the Web site is equipped with a public key that encrypts the information obtained through the Web site, along with a unique private key (which is stored on hard-disk space inaccessible to people on the Internet) that is used to decrypt the information from the Web site. Using this system, even if unwanted onlookers intercept transmitted data, they will not be able to make sense of it because they lack the one and only code that can decipher the information. It is by this process that the information stored in our online database is preserved. Technology is available to allow practitioners to provide inexpensive Internet-based interventions while maintaining patients' confidentiality and privacy. With a low-cost Web site, such as those used for "blogging" or hosting discussion groups, and encryption software (i.e., ArticSoft FileAssurity and Content Assurity Software, \$124; ArticSoft Limited, 2003), therapists can offer mental health services facilitated by the Internet and e-mail. However, practitioners should first follow the recommendations of Glueckauf et al. (2003) and assess their capacity to offer Internet-based interventions.

Even though the Internet application is designed to protect patient privacy and confidentiality to the fullest possible extent, patients are warned that they must also play an active role in protecting their personal information. To this end, patients are instructed to keep their log-in ID and password private. They are also encouraged to access the Web site in a private area, preferably in the comfort of their own homes. Using the Web site in private reduces the number of potential onlookers. The Web site is also designed to log patients off after 20 min of inactivity, using a "cookie" that maintains the session when patients are logged on to the site. After 20 min of inactivity, that cookie expires and is removed from the patient's computer. With any subsequent activity, the site will return to the log-in screen and changes will not be saved. This process is designed to reduce the likelihood of unauthorized persons accessing the Web site and degrading patients' data.

Initial Observations

To date, 14 participants have been randomly assigned to the SIT program (an additional 9 have been randomly assigned to a control condition). It appears thus far that the approach is not particularly draining of therapist time. There are five scheduled calls over the span of the 8 weeks built into the protocol. The approximate modal time for these phone calls is estimated to be 5 min. In some cases, these calls take more time for patients who have many questions or when the therapist judges it necessary to discuss compliance issues, but rarely do these types of calls last beyond 15 min. At present, extra calls are only required in cases when there is compliance difficulties (e.g., the patient has not logged on for

several days and did not respond to several e-mails). The number of extra calls required for compliance-related matters is approximately one to three over the course of the intervention. In terms of the frequency of e-mailing, therapists in the study report that they have needed to e-mail their patients approximately once every 2 weeks but in some cases one time per week, particularly in the first half of the program. E-mails have chiefly been minimal unless a discussion is required about obstacles to compliance.

Although it is premature to offer outcome data, we provide some data pertaining to how patients are engaging the Internet-based process. No one participating in the SIT program has dropped out thus far. Participants have spent an average of 201.02 min ($SD = 148.7$) online filling out forms, getting information, and reporting homework results (range = 79.7 to 530.3). This translates into an average of 3.4 hr of online activity ($SD = 2.5$) across the span of the intervention, with an average of 8 min ($SD = 7.9$) per visit. The average number of "Web days" logged on during treatment was 38.1 ($SD = 18.5$) out of a total of 56 possible Web days (total Web days vary; some participants are allowed to jump ahead, with the therapists' assent, whereas others are unable to log on daily). This means that participants, on average, are actively engaged in 67% of the available homework/log-on tasks available. The data on the frequency with which participants accessed information and self-help pages viewed by most participants are as follows: description of Subjective Units of Distress Scale (100%), rationale for self-monitoring (80%), sleep hygiene (80%), coping strategies (80%), trauma-related beliefs (80%), diaphragmatic breathing technique (60%), progressive muscle relaxation technique (60%), anger (60%), and understanding trigger events (60%). The information pages viewed the least so far were the description of stress hierarchy (20%) and maladaptive thoughts (20%).

It appears from the initial data that while most patients are unable to log on daily, as we had planned in the ideal case, most are engaged sufficiently over time and are absorbing the bulk of the intervention. It is also of note that overall the treatment is tolerated very well (there have been no symptom exacerbations). At present, we are unable to determine the modal cause of less than 100% compliance. It could be that people naturally utilize what they need or do the best they can, given the pace of their lives, and this may be acceptable, especially if they increase their capacity to cope effectively with trauma-related triggers and reduce the frequency or severity of their PTSD symptoms. Ultimately, it may be that our approach will need to be offered in a fashion that fosters less frequent log-ons and greater flexibility of homework choices. On the other hand, the self-help approach adopted in this program may be vulnerable to interference by avoidance behaviors. PTSD is characterized by marked avoidance, and this tendency can contribute to poor compliance with therapy (Schwartz & Kowalski, 1992). Several participants have needed considerable encouragement to comply with the intervention because they are distressed by reminders of the trauma, and the absence of regular face-to-face therapy sessions allows avoidance to proceed. We recognize that the contextual demands of the therapy are different when face-to-face interactions are limited to a single session. In multisession therapist-directed CBT, commitment to the demands of extrasession homework is bolstered by interpersonal features of the therapeutic relationship (e.g., support, guidance, credibility, unconditional caring, encouragement, praise). This issue has been addressed in several cases by increasing telephone contact with the participant to encourage commitment to the therapy goals.

Discussion and Future Directions

There are many challenges facing mental health professionals who treat patients with PTSD. Providing efficacious interventions to more people will require us to find creative ways of extending the delivery of proven techniques beyond the traditional bounds of the therapy office. The benefits of disseminating information via the Internet suggest that this modality is a promising way to promote better mental health following trauma at a community level (or through primary care). We described an approach that requires an initial face-to-face therapy session and therapist oversight of Internet-prompted therapeutic activities. The strength of this approach is that it allows for greater quality control and individualized and flexible care. The weakness is that it requires more time and effort than an Internet-only approach, it may be unduly burdensome, and the self-management approach may be found to be useful only for those who are especially motivated or resourceful.

It will be important to examine the efficacy of self-management approaches using the Internet in future controlled trials with a variety of traumatized groups. Research should examine the efficacy of the therapist-assisted Internet-based approach in contrast to face-to-face care and an Internet-only approach. The dependent measures should not be limited to standard indices of symptom reduction; ease and convenience of access, cost of care, coping self-efficacy, homework compliance, and functional capacities should be evaluated. In our view, the therapist-assisted Internet approach will foster greater follow-through with homework, which is the key mediator to behavior and lifestyle change. We also predict that the approach described in this article will promote the greatest gains in self-efficacy because it maximizes the likelihood of adaptive coping and success experience.

A core question that remains concerns the relative benefits of Internet-based delivery and traditional face-to-face therapy. Although it is probable that face-to-face therapy will lead to greater symptom reduction than Internet-based approaches, this outcome needs to be considered in the context of the relative costs of each intervention. If Internet-based interventions can demonstrate reasonable clinical gains, albeit not as great as traditional therapy modalities, Internet-based therapist-assisted programs may represent an appropriate context to provide mental health care when many people require assistance and face-to-face therapy is not practical or cost-effective. Thus far, we have not determined the specific costs associated with the therapist-assisted SIT program. However, we have no doubt that using the Internet to promote self-management and adaptive coping with posttraumatic demands will be far less expensive than lengthy face-to-face therapy. Ultimately, future research will need to determine the relative cost or benefit of various degrees of therapist involvement in the self-help process.

Future research also needs to evaluate the components of CBT that are most amenable to Internet-based delivery. Our current approach has focused predominantly on anxiety management techniques, skills training, and cognitive reframing. The utility of repeated exposure exercises, which have been used successfully in PTSD treatment, may also be amenable to Internet-based delivery (e.g., Resick, Nishith, Weaver, Astin, & Feuer, 2002). It will also be important to examine individual-difference variables that predict successful engagement and outcomes using the therapist-assisted Internet-based therapy. For example, it may be that indi-

viduals who are more independent and problem focused in their approach to problems would particularly benefit from the self-help approach to recovery from trauma.

It is possible that some participants will not respond optimally to the various exercises because they are not receiving the regular personal support from a therapist. There is evidence that nondirective supportive counseling is therapeutic following trauma (Bryant et al., 1998; Bryant et al., 1999). It appears that distinct from the techniques that are learned during the therapy program, the absence of face-to-face therapy support may diminish symptom reduction. Generally, it could be that some of the techniques that are taught in the therapy program are difficult to master without direct input from a therapist. Cognitive reframing, for example, typically involves numerous instances in which the patients struggle to effectively evaluate their interpretations against available evidence. Traditional cognitive therapy would focus on detailed discussion with the participant until the participant recognizes the basis for the catastrophic nature of his or her thoughts. Although it is likely that this form of therapy delivery will not be as powerful for some components of therapy (such as cognitive therapy) compared with face-to-face treatment, we have found that many of these issues can be addressed in our program by (a) increasing telephone contact as needed, (b) increasing homework exercises to facilitate learning, and (c) repeating the educational components pertaining to that therapy strategy.

Historically, the treatment of PTSD involved intensive and lengthy individual or group psychotherapy, initially provided in specialized inpatient treatment programs but more recently conducted in mostly outpatient settings. It was assumed that patients require considerable time to build a trusting therapeutic alliance so that they can share (and acknowledge to themselves) the intricacies of their traumatic experiences and the way they cope with the challenges of an altered life course stemming from trauma. We argue that this assumption is still valid with respect to the treatment of certain severe forms of trauma and very chronic and entrenched PTSD. For example, no clinical researcher or seasoned clinician would recommend applying intensive exposure therapy without a sound therapeutic alliance, which, in some cases, can require a great deal of time to develop. We suspect that therapist-assisted self-help approaches that use evidenced-based interventions are particularly viable before chronic PTSD becomes entrenched and individuals have not developed overlearned posttraumatic habits, beliefs, and lifestyles that require more intensive treatment to counteract.

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